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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,472	02/02/2001	Masaaki Hiroki	SEL 238	7144
7590 11/06/2003				
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CLEVELAND, MICHAEL B				
ART UNIT		PAPER NUMBER		
1762				

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/776,472

Applicant(s)

HIROKI ET AL.

Examiner

Michael Cleveland

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,7,10-12 and 19-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6,7,10-12 and 19-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 021003. 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/4/2003 has been entered.
2. Claims 6-7, 10-12, and 19-47 are present in the case. Applicant's amendment indicates that claims 1-5 and 8-9 are withdrawn. The indication is incorrect. Applicant canceled claims 1-5 and 8-9 in the amendment filed 8/6/2002.

Information Disclosure Statement

3. The Examiner has received the copy of p. 31 of 09/685,698 and therefore, the document has been fully considered. Applicant requests consideration of the Japanese references based upon the submitted Abstracts. The examiner has interpreted the request as an assertion that the Abstracts represent the concise explanation of relevance of non-English references required by 1.98(a)(3), and the references have been considered accordingly.
4. The Examiner requests clean copies of Applicant's form PTO-1449 filed 2/10/2003. (The Examiner lined through the references not considered in pencil, in accordance with PTO policy. However, in the process of converting to the electronic image file wrapper (IFW) examination, all papers present in the application were scanned, and as a result, the former pencil marks have been recorded into the electronic file as indelible images that might lead to the crossed-out references not being printed on any issuing patent. The Examiner requests a clean copy so that all references may be clearly indicated as having been considered.)

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 6-7, 10-12, and 19-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification as originally filed for the term "continuously discharging", especially in the context argued by Applicant on p. 13 of the response, as differentiating from intermittent ink-jet printing.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 35 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 35 and 42 recite the limitation "said bank" in the last line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 6, 10-12, 19-20, 22-25, 31, 33-37, and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (WO98/24271, hereafter '271. References made are to the English equivalent, US Patent Application 2002/0041926) in view of Horike (U.S. Patent 4,281,332, hereafter '332), Iguchi (WO98/27579, hereafter '579. References made are to the English equivalent US Patent Application 2002/0009536.) and Kasubuchi et al. (U.S. Patent 3,878,517, hereafter '517).

Claims 6, 20, 31, and 37: '271 teaches filling an ink-jet nozzle with ink (an application liquid) for forming an electroluminescent (EL) layer and applying it to a pixel column (Abstract; Fig. 1).

'271 does not explicitly teach that the ink-jet nozzle works using ultrasonic oscillation, but instead teaches the use of a vibration pulse pressure dispenser (See [0083]-[0087]). '332 teaches a particular pulse pressure dispenser (col. 1, lines 6-11), which uses ultrasonic vibrations (i.e., oscillations) in order to provide pressure pulses (col. 3, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the ultrasonic vibrator of '332 as the particular vibrator of '271 with a reasonable expectation of success because '332 demonstrates that ultrasonic vibrations are capable of providing the pressure pulses to operate ink-jet printing nozzles.

'271 and '332 do not explicitly teach continuously discharging the application liquid nor traversing by scanning along a direction parallel to a pixel column. The differently colored pixels of '271 appear to be small rectangles rather than elongated stripes (Fig. 8). However, '579 teaches that the differently colored areas of plasma displays (a particular type of electroluminescent displays), may be elongated stripes, which are printed by traversing a nozzle along the direction parallel to the barrier ribs ([0206]-[0207]), which are between, and therefore parallel to the underlying electrodes (Fig. 1; [0293]). '517 teaches that ink-jet printing using ultrasonic oscillations may be used to provide ink intermittently or to provide a continuously-discharged stream of droplets (col. 7, lines 6-24). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness.

Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used different colored pixels of elongated stripe shapes because '579 teaches that such is an operative embodiment of differently colored pixels for electroluminescent displays and to have deposited such stripes by a continuous stream because '579 teaches that a continuous stream may be used to deposit such stripes and because '517 teaches that ultrasonically-operated ink-jet printers are capable of providing continuous streams of droplets.

Claims 10-11, 22-23, 33-34, 39-40: '332 teaches that the ultrasonic vibrations provide pressure pulses that eject the droplets (col. 3, lines 1-15).

Claims 12, 25, 35, and 42: '579 teaches that when depositing electroluminescent material between partition walls of EL displays ([0001]-[0003]), it is desirable to maintain a constant distance between the substrate and the nozzles, and that such distance may be maintained by an element in contact with the partitions ([0246]-[0249]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact element in contact with the partition walls in order to have maintained a constant distance between the nozzle and the substrate during the coating process.

Claims 19, 24, 36, 41: '271 teaches that the ink-jet printer prints between partition walls (banks) (105) covering at least an edge portion of pixel electrodes (101, 102, 103). (Fig. 1; [0043]-[0050]).

Claims 20 and 37: '332 teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26).

12. Claims 7, 21, 32, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332, Iguchi '579, and Kasubuchi '517 as applied to claim 6, 20, 31, and 37 above, and further in view of Fujimura '803.

'271, '332, '579, and '517 are described above. '271 demonstrates that the orifice may have a smaller inside diameter than the rest of the nozzle (Fig. 11), but does not explicitly teach the provision of a heater on the orifice. '332 teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26).

‘803 teaches that the thermal energy for ejected ink jet droplets may be provided by heaters at the orifice (col. 2, lines 40-45; col. 5, lines 35-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided heaters at the orifice (which has a smaller diameter than the rest of the nozzle) with a reasonable expectation of success because ‘356 demonstrates an operative ink-jet nozzle formation with such a smaller nozzle and because ‘803 demonstrates that nozzles provided at the ink-jet nozzle orifice are operable for ejecting the ink.

13. Claims 26, 28-30, 43, and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita ‘271 in view of Horike ‘332, Iguchi ‘579, and Kasubuchi ‘517 as applied to claims 6 and 31 above, and further in view of Kurosawa et al. (U.S. Patent 6,057,647, hereafter ‘647).

‘271, ‘332, ‘579, and ‘517 are described above. ‘271 teaches that the EL elements may be deposited on top of thin film transistor (TFT) elements ([0015], [0134], [0138]) and teaches that the EL elements may be formed by forming pixel electrodes on a substrate and forming a bank overlapping the edges of the pixel electrodes on the pixel electrodes, as discussed above. ‘271 does not explicitly teach that a TFT is formed on a substrate, an insulating film is formed on the TFT, and the pixel electrodes (and then banks) are formed on the insulating film.

‘647 teaches a method of depositing EL elements onto TFTs, in which TFTs (2, 3) are formed on substrate (31) and then insulating layer (52) is formed on the TFTs, followed by the anode (161) (as the pixel electrodes of ‘271) are anodes and partitions (63) (Fig. 14, col. 11, lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the configuration of ‘647 as the particular configuration to integrate the EL elements of ‘271 with the TFTs of ‘271 with a reasonable expectation of success because ‘647 teaches that that configuration is an operative method of using TFTs in conjunction with EL elements.

Claims 28-29, 45-46: See discussion of claims 10-11, above.

Claim 30, 47: See discussion of claim 12, above.

14. Claims 27 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332, Iguchi '579, and Kasubuchi '517 and further in view of Kurosawa '647 as applied to claim 26 and 43 above, and further in view of Fujimura '803 as applied to claim 7, above.

Response to Arguments

15. Applicant's arguments filed 1/3/2003 have been fully considered but they are not persuasive.

Applicant argues that the new limitation of "continuous discharging" overcomes Miyashita, Fijimura, and Horike because they are directed to ink-jet technology. Applicant argues that it is well known that in ink-jet printing drops are discharged intermittently rather than continuously. Applicant's argument is unconvincing because it is unsubstantiated by evidence and because it is contradicted by Kasubuchi '517, which teaches that the droplets may be discharged in a continuous stream rather than intermittently.

Applicant argues that Iguchi et al. is directed to a plasma display rather than a self-light-emitting device with an EL layer. The argument is unconvincing because a plasma display is a self-light-emitting device with an electroluminescent phosphor layer. Applicant argues that Iguchi teaches a phosphor, but not an EL material. The argument is incorrect because phosphors are electroluminescent materials. Furthermore, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

To the extent that this appears to be an argument that Iguchi is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Iguchi is reasonably pertinent to the problem with which applicant is concerned, that is, the provision of multi-colored areas of electronic display devices.

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Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



MBK

October 30, 2003